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# TELECOMMUNICATIONS, BUSINESS FACILITATION AND TRADE EFFICIENCY

## Some major implications of the Global Information Infrastructure (GII) for trade and development

Issue paper prepared by the UNCTAD secretariat

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## INTRODUCTION

1. The first session of the Commission on Enterprise, Business Facilitation and Development took place from 20 to 24 January 1997. Following an in-depth exchange of views and experiences on the basis of the documentation prepared and presentations made by the secretariat on item 4 of that session's agenda (services infrastructure for development and trade efficiency), the Commission provided guidelines and set priorities for the work of the secretariat in the relevant areas.

2. In this connection, the Commission decided *inter alia* to convene an Expert Meeting on Telecommunications, Business Facilitation and Trade Efficiency. It specified that "the focus of the meeting should be to assess the practical trade and development implications of the Global Information Infrastructure (GII), including its applications for the Global Trade Point Network (GTPNet)".

3. This decision needs to be considered against the broader background of the final outcome of UNCTAD IX (Midrand, April-May 1996), since paragraph 94 of the Conference's final text "A Partnership for Growth and Development" specified that "in order to provide practical support to entrepreneurs in developing countries, UNCTAD should follow up on the results of the United Nations International Symposium on Trade Efficiency (UNISTE), held at Columbus, Ohio, in October 1994. Within existing resources, it should in particular ..., taking into account the relationship between trade efficiency and information infrastructure, in close cooperation with ITU, assess the practical trade implications of the emerging Global Information Infrastructure (GII), and identify relevant avenues for action in this area"[1].

4. When it was launched in 1991, one of the main objectives of UNCTAD's Trade Efficiency Initiative was to provide practical ways and means to reduce dramatically the transaction costs associated with international trade operations. This was expected to be achieved in particular through a more intensive use of information technologies. Since then, a number of factors have affected the fields of business facilitation and trade efficiency, including the following:

(a) The pace of the so-called telecom revolution (whereby the capacity to transmit information over telecommunications networks increases whereas the cost of such transmission diminishes) has not been reduced; on the contrary, events such as the rapid growth of the Internet have contributed to enhancing the ability of smaller players to benefit from the latest advances in multimedia interactive communications;

(b) All parties involved in international trade (private and public) have become increasingly aware of the vital importance of adequate telecommunications to trade and investment globally. In many respects, telecommunications have become an "infrastructure service" for international flows of goods, services and capital and in many respects also, the new dynamics of multilateral trade negotiations (as visible through the placing of a "trade facilitation" item on the WTO agenda, or the sequence "Information Technology Agreement (ITA) - Telecommunications Basic Services Agreement - Financial Services

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[1] "A Partnership for Growth and Development", TD/377, 24 May 1996.

negotiation" constitute further evidence of this phenomenon;

(c) The nature and characteristics of the technological progress achieved in the field of telecommunications are such that they offer new avenues for bridging the gap between the information haves and have-nots, and enhancing the participation of smaller players (such as developing countries and small and medium-sized enterprises) in international trade, practical examples such as UNCTAD's Global Trade Point Network (GTPNet) offering interesting evidence in this context.

5. The present document attempts to delineate some of the main components of the above developments, while indicating some of the areas in which participating experts might be in a position to offer UNCTAD practical proposals and indications for pursuing and improving its work in the area of business facilitation and trade efficiency while enhancing the ability of developing countries and economies in transition to benefit from the emergence of a Global Information Infrastructure (GII). The general institutional and substantive background of UNCTAD's approach to telecommunications in relation to business facilitation and trade features is addressed in section I. Section II focuses on the main specificities of recent advances in the area of global telecommunications, including the emerging GII and the potential impact of telecommunications' lower price/performance ratios on international trade. Section III attempts to explain how the elements described in the first two sections are generating new analytical and practical concepts in the area of trade policy and trade negotiations, giving particular importance to electronic commerce. Finally, in section IV, practical examples are given to illustrate the use that smaller players (especially developing countries and small and medium-sized enterprises) can make of new telecommunications services with specific reference being made to the Global Trade Point Network.

## SECTION I - BUSINESS FACILITATION, TRADE EFFICIENCY AND THE TELECOM REVOLUTION

### 1. UNISTE's recommendations concerning telecommunications

6. UNISTE (the United Nations International Symposium on Trade Efficiency, held in Columbus, Ohio, in October 1994) considered a number of practical recommendations in the area of telecommunications (see document TD/SYMP.TE/2, paragraphs 61-68). Divided into two main categories (measures relating to access to telecommunications networks, and measures relating to access to services on the other), these recommendations were only partially discussed during UNISTE and its preparatory process.[2] It is therefore clear that the UNISTE recommendations in the area of telecommunications still offer a broad area for further investigation and examination by UNCTAD.

7. Since UNISTE was held, a number of major changes have affected the telecommunications sector and the use of telecommunications in business and trade transactions. Among such changes, the following are of particular significance:

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[2] In the Ad Hoc Working Group on Trade Efficiency, and later in the Preparatory Committee of UNISTE, delegations chose to focus on the measures requiring government action, leaving for further examination the recommendations concerning actions by telecommunications operators and service providers.

(a) The extremely rapid development of the Internet (and in particular of its World Wide Web component);

(b) The so-called convergence of various modes of transmitting information (telephony, broadcasting, interactive multimedia), which through the process of "digitalization" offers unprecedented possibilities for exchanging various types of information (voice, data, image) using the same infrastructure and equipment;

(c) New challenges to traditional ways of addressing regulatory and pricing issues, especially in the area of international telecommunications;

(d) The possibility that new technologies and infrastructure such as global non-geostationary satellite systems (LEOS) could dramatically affect the cost of mobile (wireless) telephony in the next few years.

8. All these new developments have had profound effects on the way in which business and trade transactions are carried out, as well as on possibilities now available to enterprises (including small- and medium-sized ones) to compete efficiently on international markets. The UNISTE recommendations therefore need to be revisited and enriched in the light of these recent developments.

## 2. Impact of telecommunications on the other sectors of trade efficiency

9. In the UNISTE context, telecommunications has been one of the six trade-supporting sectors addressed by UNCTAD's Trade Efficiency activities. It should, however, be borne in mind that a clear hierarchy exists among these sectors, which stresses the central role of telecommunications *vis-à-vis* all other trade-supporting services. This hierarchy can be described as a "one-two-three model" in which one sector (telecommunications) appears as an infrastructure for two other trade efficiency sectors, namely business information (which cannot be collected, transmitted or handled efficiently in the absence of adequate telecommunications) and trade facilitation (which greatly benefits from advances in information technologies, as is clear from the gains made by the enterprises and countries that have adopted "paperless" ways of trading). In turn, benefits realized in these two "intermediate" sectors will benefit the remaining three, namely customs, transport and financial services (banking and insurance). This "one-two-three model" can be symbolized as follows:

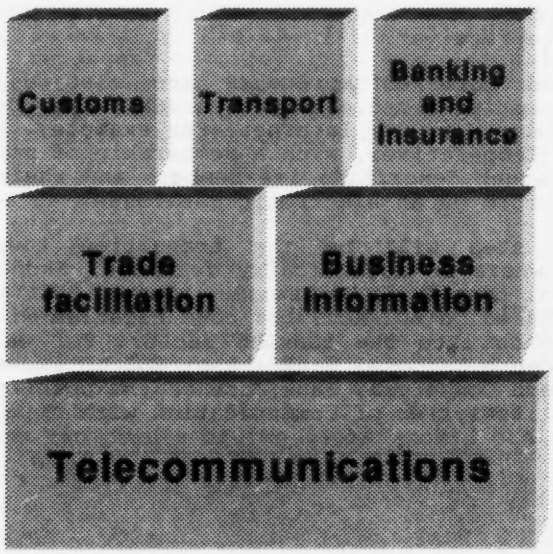


**Figure 1: The one-two-three model of trade efficiency**

**Box 1: A practical example of how telecommunications affect business and trade: The Czech Republic**

During the long period of communist rule, telecommunications in the Czech Republic suffered from continuing under-investment and resulting high costs of communication in terms of time and money. Business often had to resort to traditional means of communication, such as mail or telex. Transition to the market economy system brought about a radical change in the understanding of the importance of the telecommunications sector for the development of business activities. As a result, massive infrastructural investments were made, dramatically improving the quality of the telecommunications infrastructure. Simultaneously, a range of new telecommunications services, such as the Internet, have been developing at a rapid pace. In 1996, the Czech Republic ranked fourth in the world in the rate of growth of Internet connections (145 per cent, as compared with the world average of 70 per cent). Increasing competition puts pressure on large telecommunications companies, and the prices of some services tend to decrease.

The developments in infrastructure, as well as in the range and prices of telecommunications services, have facilitated the adoption of more advanced business practices. The process is likely to go through three stages. As a first step, digital lines speed up telephone and fax communication and eliminate the dependence on mail.

Second, computer-to-computer communication through fax-modem or electronic mail starts to crowd out faxes. According to recent research, half of the current 150,000 to 300,000 Internet users in the Czech Republic (which has a population of 10 million) use the Internet for business purposes. Such an approach generates economies of money and time, better quality of data transmitted and the possibility of their further processing. As Mr. Riha, the owner of the Inexim Sped company puts it: "We often trade with countries of the former USSR. Phone and fax communication practically do not work there. The only reliable link is via Internet. We frequently communicate with our branch in Kiev. After having switched towards the Internet, we have cut our telecommunication bill from 150,000 to 20,000-30,000 crowns [30 Czech crowns are approximately equivalent to 1 dollar] per month. The documents received through the Internet cannot be distinguished from originals and it is also possible for us to work with the data that we receive".

More and more entrepreneurs are also discovering electronic publicity. Small and medium-sized enterprises (SMEs) may decide to join efforts to promote their products on the Internet. For example, the Czech and Moravian Union of Producers' Cooperatives, with a membership of more than 400, placed a web page on the Internet describing its members and their products, sometimes even in the graphic form of an electronic catalogue.

Another step will be the transition toward electronic data interchange (EDI), wherever economically feasible. Skoda, a major Czech car producer, whose parent company is Volkswagen, adopted ODETTE, an EU-designed data interchange system based on EDIFACT, for communication with its suppliers. EDI is also making inroads into the banking sector. For example, the country's Central Bank - the Czech National Bank - uses EDI to exchange information with other banks. The Czech Commercial Bank, one of the country's four major banks, introduced EDI into its system of communication with clients.

## SECTION II- TELECOMMUNICATIONS AND THE GLOBALIZATION OF INTERNATIONAL TRADE: A VITAL ROLE FOR SMEs

10. The advent of a so-called Global Information Infrastructure (GII) has often been described as the necessary ingredient without which the benefits of the third industrial revolution (that of information and information technologies) would remain out of reach for a large part of the world's population. As trade in services (and, in particular, information-intensive services) increases, and as trade in both goods and services becomes itself more dependent on international information flows, telecommunications play an increasingly important role in the process of globalization of international trade. How can developing countries benefit from this process? Before an attempt is made to answer this question, it is important to address two preliminary (and often ignored) questions: (a) what is the GII? and (b) what is the exact nature and importance of the "telecom revolution", especially in developing countries?

### 1. What is the GII?

11. Since 1994, the year of the Buenos Aires World Telecommunications Development Conference, the acronym "GII" has been used extensively. Coined on the basis of "National Information Infrastructure" (NII), it has never been precisely defined. Generally, it is understood as a worldwide infrastructure composed of a mix of high-speed computer and telecommunications equipment, allowing the fast transmission of information among enterprises and individuals.

12. Depending on which industry (computer manufacturers, telecommunications carriers, content suppliers) or potential user (large multinationals, SMEs, schools, hospitals, Governments) looks at it, the GII is sometimes described in different fashions. Some would rather see it as a vehicle for the transmission of data, others as a vehicle for the exchange of multimedia messages, and yet others as the "global commons" which would underpin universal telephony services worldwide. However, most analysts agree today that the GII will have three main characteristics: (i) it will be digital (thus allowing the undifferentiated transmission of all messages - voice, data and images); (ii) in terms of capacity, it will largely overcome the obstacle of scarcity, which had been a main constraint on network design and expansion until now, and (iii) it will offer broad possibilities for tailoring its services to the specific needs of individual users.

### 2. Nature and extent of the "telecom revolution"

13. Of particular importance to trade and development is the second characteristic mentioned above, namely that available capacity will increase dramatically. This can be considered as the worldwide extension of the phenomenon which appeared in the previous decade on the most popular information highways, such as transatlantic cables (see figure 2) - the unit cost of transmitting information between any two points of the globe should diminish to the point of being almost negligible.

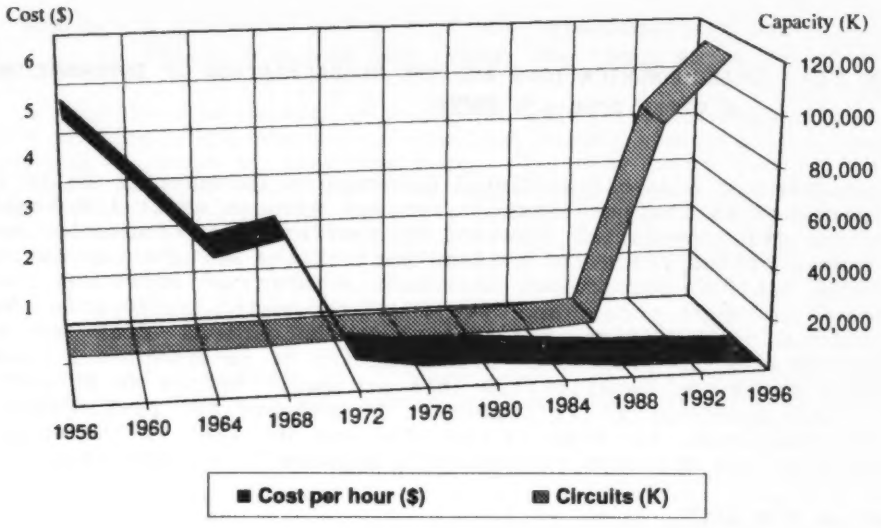


**Figure 2: Transatlantic cables: Cost and capacity (1956-1996)**
**(*Source:* UNCTAD, on the basis of ITU data)**

14. This phenomenon, however, has been seen by some as largely limited to (i) the national economies of a small number of advanced countries (e.g. countries where the concept of NII was considered a priority) and (ii) main communications lines among such economies. At the present time, a major question facing developing economies is "how global will the GII be?", or in other words, can developing countries benefit from the "info new deal"?

15. The gap which separates the information haves and have-nots is still very wide, as shown by the number of telephones per capita (see figure 3): there are still today fewer telephones in the whole of the African continent than in the city of Tokyo, and some 2 billion human beings have never seen a telephone. It is clear that technology now offers unprecedented ways of bridging this gap: telecommunications and computing are easier to learn and use, and less costly, than ever before. However, as all major indicators show, developing countries - and especially the LDCs - will not be in a position to benefit from this new wave of opportunities unless they can mobilize the necessary financial resources to make sure that the GII "branches out" to their markets, rather than by-passing them.

16. On the other hand, this static picture needs to be complemented with more dynamic elements. Over the last decade, a significant number of developing countries have improved their telecommunications infrastructure, and others have set improvement as a priority for the near future. Projections by the World Bank indicate that a majority of developing countries have indeed initiated significant efforts to be part of the emerging GII. This is clear both from the projected growth in telecommunications lines and from the average annual telecom investment considered for the period 1970-2005 (figures 4a and 4b).[3]

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[3] Figures 4a and 4b use World Bank groupings for economies in transition and developing countries, namely NIS (newly industrialized countries and the former Soviet Union), ECA (Eastern Europe and Central Asia), LAC (Latin America and the Caribbean), AFR (sub-Saharian Africa), MENA (Middle East and

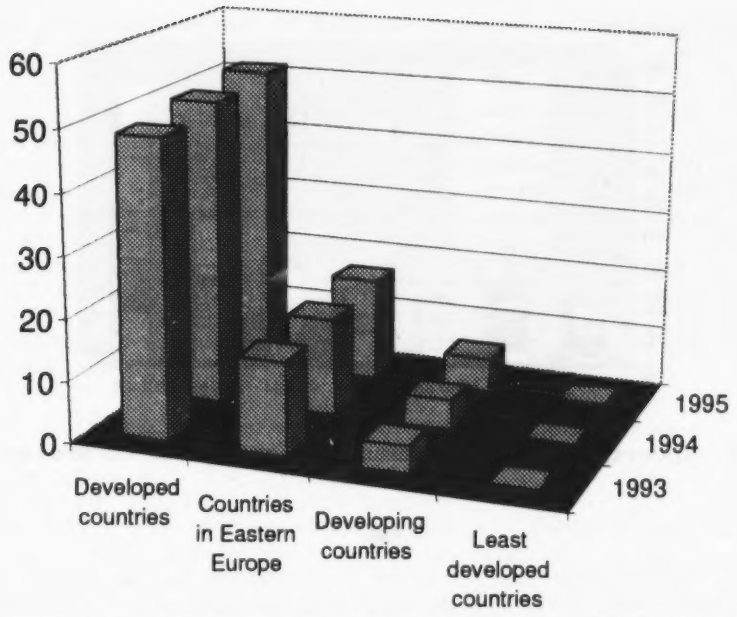


**Figure 3: Telephones per 1000 inhabitants (1993-1995)**
***Source:* UNCTAD, on the basis of ITU data**

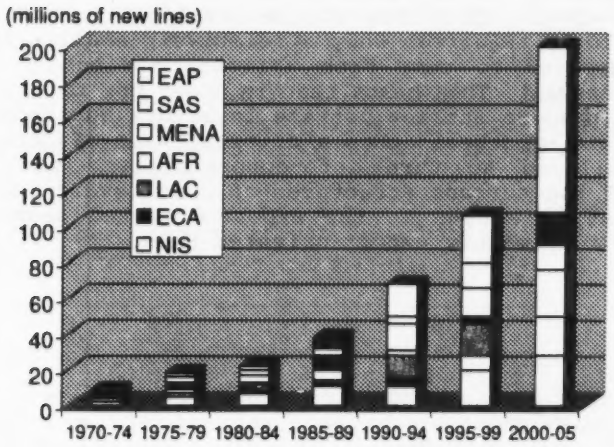


**Figure 4: Millions of new lines installed or projected (1970-2005)**

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North Africa), SAS (South-East Asia) and EAP (East Asia and the Pacific). *Source:* Pyramid Research (1994) "Analysis of Telecommunications Investment and Financing in Less Developed Countries", report prepared for the World Bank, (see http://www.worldbank.org/html/fpd/harnessing/hid2.html).

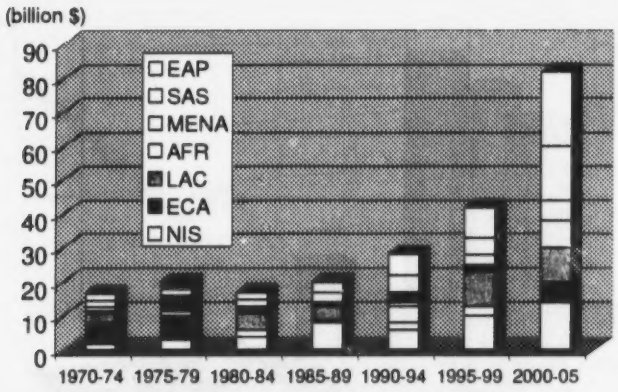



**Figure 4b: Investment in telecommunications, made or projected (1970-2005)**

### 3. A vital role for SMEs

17. Awareness and priority setting, however, are not enough to turn strategies into development opportunities. For most developing countries, the investment required for connecting to the GII generally far exceeds local savings capacities. For instance, it has been estimated that, in order to bring the average level of telephony in Africa to the level of that of Southern Europe, some $50 billion would be required. Only a relatively small proportion of these funds should be expected to come from national savings or external donors (bilateral or multilateral). This means that in order not to miss out on the GII, developing countries need to attract private investors to their telecom sector. This can be a realistic hypothesis once a critical mass of local users has been identified and mobilized to turn info-opportunities into actual economic benefits. In view of the current structures of most developing economies, such a critical mass must be sought in the export-oriented segment of the local business community, i.e. mainly export-oriented SMEs.

**Box 2: An alternative way to finance telecom infrastructures: the example of GrameenPhone in Bangladesh**

GrameenPhone is a premium-priced cellular telephony (GSM) offering for individuals and business in Bangladesh's urban centres and has about 4,000 subscribers. It is a consortium of three foreign telecommunications companies plus Grameen Telecom of Bangladesh, a subsidiary of the well-known Grameen Bank. Its, comprising two million households, base of borrowers represents prospective customers for the GrameenPhone service through the extension of the bank's micro-credit scheme to provide GSM as a unique part of its services in the villages. Telephones and airtime will be leased at a discount to individual Grameen Bank borrowers, who in turn will offer a telephone service to villagers who cannot afford ongoing telephone subscriptions. Proceeds from the telephone service can then be used to pay back the bank loans.

The consortium partners were attracted because Grameen Telecom has the licence to access 300 kilometers of fibre route along the railway lines between the main cities, Dhaka and Chittagong, to which it can connect its radio base stations. Furthermore, the bank's 1,076 branch offices can be used as a location for base stations and its 13,000 employees provide a ready workforce for a mobile telephone service. More strong points can be seen in the nationwide goodwill enjoyed by the bank, which enabled it to overcome commercial and regulatory hurdles, the enviably low default rate among its borrowers and the existing billing and loan collection mechanisms. Mohammed Yunus, the Grameen Bank's founder will spend $70 million in 1997 and build up a total investment of $500 million over the next five to six years, and promises "the fastest implementation of any cellular project globally and the cheapest mobile service in the world". GrameenPhone is planning to provide coverage of 98 per cent of the country by its fifth year of operation. This GSM venture is unique in more than one way: a 51 per cent majority equity is held by Telenor of Norway; and Grameen Bank, as a non-governmental agency enjoys tax-free status and has been allowed to enter one of the most profitable new sectors in the country.

In addition to GrameenPhone, there are two other new GSM licensees in Bangladesh trying to react to this situation, but Bangladesh welcomes foreign money to strengthen the system's backbone, so that new operators can benefit from reliable access to the network.

*Source:* Communications International, June 1997.

18. The trade competitiveness of local SMEs should therefore be considered a priority target for the introduction of telecommunications and information technologies in developing countries, especially those which may not have the minimal market size to attract foreign investors to the financing of their telecommunications infrastructure[4].

[4] Alternative financing schemes have been initiated, for example GrameenPhone in Bangladesh (see box 2), which involve not only SMEs but also even micro-enterprises.

## SECTION III - THE NEW DYNAMICS OF INTERNATIONAL TRADE

19. Over the last 10 years or so, increasing attention has been devoted to trade in telecommunications services, especially in the GATT/WTO context. The matter is of immediate importance to developing countries, since in an increasing number of sectors (including education and health, for example, but also, increasingly, in the areas of business facilitation and trade efficiency) telecommunications are a key infrastructure, in which most equipment and services remain unavailable from local producers and thus need to be imported. On the other hand, the rapid growth of international trade in telecom equipment and services (see Box 3) raises specific issues for developing countries, e.g. as regards the accounting rates used to establish international settlement payments among countries.[5]

20. However, considerably less attention has been given to the role of telecommunications in trade. This is all the more surprising that, in many respects, recent advances in information technologies and international information networks have radically modified the dynamics of (and sometimes the rationale) for international trade. The new dynamics need to be considered when attempting to identify the areas in which developing countries and their SMEs could benefit from the emerging GII.

### 1. Telecommunications and new trade paradigms

21. In the 1980s, many analysts and trade policy makers came to realize that the traditional approach to "economic development" (whereby a country would gradually develop its production structures from agriculture and raw materials to industry and ultimately to services) did not apply to trade: in an increasing number of instances, services had become a prerequisite for the conduct of international trade. The "old paradigm" therefore had to be shifted (figures 5a and 5b).

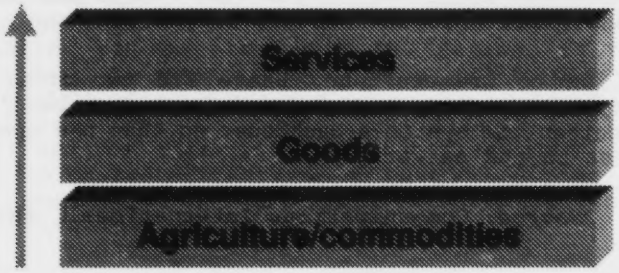


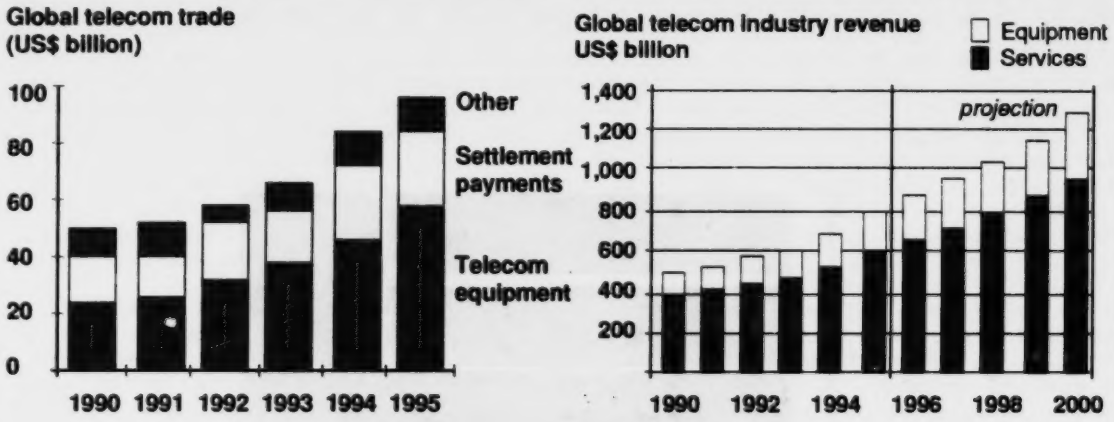

**Figure 5a: The old "production" paradigm**

[5] On the issue of accounting rates/settlement payments, practical proposals have started to be discussed in the ITU context, which are expected soon to pervade the WTO arena. See, for instance, T. Kelly "Ten propositions for accounting rate reform", paper presented at the Development Symposium of Asia Telecom (Singapore, June 1997), available through the Internet at http://www.itu.int/indicators.

**Box 3: What is trade in telecommunications?**

What is trade in telecommunications, why does it matter and what are the benefits? The third edition of the ITU's *World Telecommunication Development Report* provides answers to these three questions. The report is timely because it coincides with the conclusion of the negotiations conducted in the World Trade Organization by the Group on Basic Telecommunications. The agreement reached brings basic telecommunications into the framework of the General Agreement on Trade in Services (GATS). This is significant because it extends the coverage of the GATS to virtually the whole of the $600 billion telecommunications service sector. Traditionally, international telecommunications services were traded under a system of bilateral agreements between nations. The WTO telecommunications agreement opens the way to a multilateral framework for freer trade, market opening and competition. The ITU report tracks the development from an old regime of international telecommunications to a new regime of global competition. Bringing together data that have never before been published, it quantifies the value of cross-border trade in telecommunications, estimated to have exceeded $100 billion in 1996 (see the figures in this box).

**Trends in global telecommunications trade, 1990-1995, and global sales of telecommunications equipment and services, 1990-2000**




*Note*: The left-hand chart shows the value of the telecommunications market traded internationally. "Telecom equipment" exports cover product categories SITC 764.1, 764.3, 764.81 and 764.91. "Settlement payments" refers to the estimates of payments made under the accounting rate system to terminate international telephone calls. "Other" is an estimate of other types of telecommunications trade carried out, for instance, by foreign direct investment in privatizations, mobile ventures, Build/Transfer arrangements, license awards, loans and aid, telecommunications consultancy, and mobile roaming. The right-hand chart show the total value of the telecommunications market.

*Source:* ITU World Telecommunication Indicators Database.

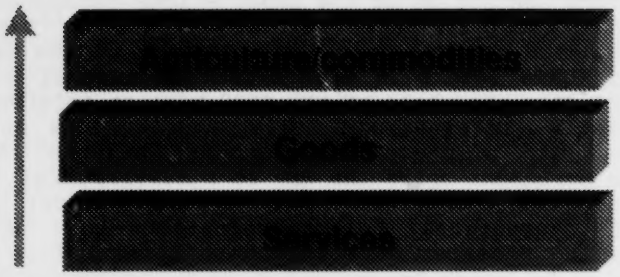



**Figure 5b: The new "trade" paradigm (1)**

22. However, among services, some (often called "trade-supporting services") play a particularly important role as "enablers" for trading other services. Hence, the new paradigm described above needs to be refined as indicated in figure 5c.

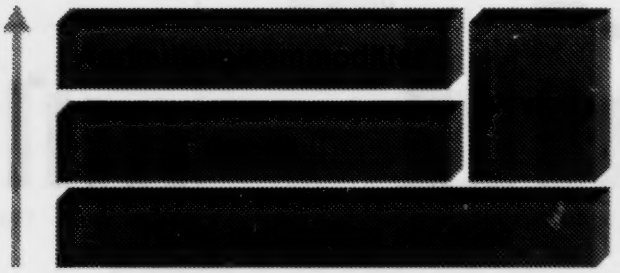


**Figure 5c: The new "trade" paradigm (2)**

23. Moreover, among these trade-supporting services, a hierarchy exists between the sectoral services such as transport, banking, insurance or the software required to collect and transmit trade information on the one hand, and the "infrastructure service" which telecommunications constitute on the other hand. This provides the basis for an even more detailed description (figure 5d) of the trade paradigm described earlier.

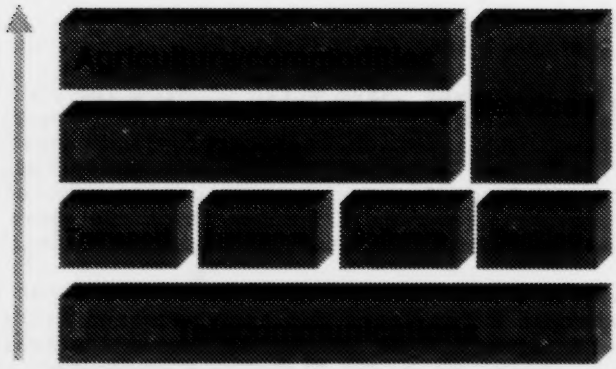


**Figure 5d: The new "trade" paradigm (3)**

## 2. Consequences for policy makers and negotiators

24. Considering telecommunications as an infrastructure service allowing the emergence of trade-supporting services, -which in turn will enable trade in goods and services- has important policy consequences. In particular, it underlines the importance of the concept of trade efficiency (defined as a strategy to generate synergies among trade-supporting services) as a vital element of any trade policy aimed at enhancing national competitiveness on international markets. It also has significant consequences regarding the dynamics of multilateral trade negotiations, since it suggests that those countries which are ready to participate in the kind of "global trade" which information technologies now allow will give high priority to liberalizing trade in telecommunications services, as well as trade in the goods and services which allow the production of such services.

25. This is exactly the sequence which was observed after the conclusion of the Uruguay Round, in the context of the World Trade Organization: the Information Technology Agreement (ITA) was signed in December 1996, and the Telecommunications Agreement was signed in February 1997,[6] opening the way for further "sectoral negotiations", for instance in the area of financial services.

## 3. The missing link of electronic commerce

26. Considered from the point of view of this "dynamic sequence" of negotiations, the relationship between telecommunications, business facilitation and trade efficiency raises a number of interesting issues:

(a) One such issue relates to the concept of "trade facilitation", which was one of the new items placed on the WTO agenda at the Singapore ministerial meeting of December 1996: if indeed some services play the role of "trade enablers" or "trade facilitators", they would need to be

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[6] It is interesting to note that, considered together, the ITA and the Telecommunications Agreement cover international business worth over $1 trillion US dollars, that is roughly the equivalent of world trade in agriculture ($ 444 billion in 1995), automobiles ($456 billion) and textiles ($153 billion) put together.

considered in that context as well.

(b) Another important issue worth considering in this area is that of the "modes of delivery", mentioned in the General Agreement on Trade in Services (GATS), which is part of the Uruguay Round package. Article 1.(2) of the Agreement states that services can be traded in four different "modes", namely cross-border provision, commercial presence (i.e. through investment); movement of customers (outside their country) and movement of staff (to the importing country).

27. Clearly, an increasing number of services can now be traded under the first mode, whereas a few years ago they required either a commercial presence or a movement of persons. This is largely due to the availability of cross-border data networks, which, to quote Nicholas Negroponte, allow countries to trade "bits" rather than "atoms"[7].

28. It follows therefore from the previous point that some parties should now be interested in establishing as rapidly as possible a multilateral framework to allow services tradable in the first mode to be exchanged as easily as possible round the world. Seen from that perspective, the liberalization of electronic commerce constitutes a "missing link" between the ITA-telecom agreement on the one hand and further efforts to liberalize trade in other services such as financial services or professional services, on the other hand. If discussions on the theme of electronic commerce were to be initiated in a WTO context (either under "Uruguay Round" items or under one of the four "new headings" adopted at Singapore), it would be important that all parties be as well informed as possible of the current state of electronic commerce and likely developments in the years to come. In such a context, the experience gained by a large number of UNCTAD members through their participation in the Trade Point programme could be of critical value.[8]

29. Over the last 12 months, the volume of electronic commerce has increased dramatically in the United States, affecting many sectors of activity such as banking, publishing and advertising, as well as web-ordering for computer equipment and software, books, motor cars and travel packages, for instance (see box 4). It is now to be expected that a similar trend will affect several other OECD countries, especially those with high Internet connectivity. This phase of rapid internationalization of electronic commerce will naturally raise a number of delicate issues in areas such as payments (see box 5), privacy, intellectual property and regulation (including regulation of content). Those countries that may still be unaware of the current or future importance of these issues as regards their own trade and development perspective may soon find themselves confronted with a set of rules which will have crystallized before their voice could be heard.

30. To a large extent, electronic commerce (especially when, as is increasingly the case now, it uses the Internet as its infrastructure of choice) is happening in uncharted territories, where few safeguards and little international regulatory instruments exist. This means that there is no text book

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[7] N. Negroponte (1996) "Being Digital", MIT Press, Cambridge.

[8] Important initiatives have been taking place around the concept of "global electronic commerce" in the OECD context. In the United States in particular, the task force chaired by Ira Magaziner has made innovative proposals such as the creation of a "tax free zone" for electronic commerce carried out on the Internet. See "A global framework for electronic commerce", available from the Internet at http://www.iitf.nist.gov/eleccom.

or even comprehensive body of jurisprudence for electronic commerce. When the time comes to negotiate an international framework for its orderly development, those who will be in the best position to use it advantageously will be those who have actually utilized it. This is an area in which international organizations such as UNCTAD and its trade efficiency partners (e.g. the International Trade Centre, ITC-UNCTAD/WTO and the United Nations Economic Commission for Europe) can continue to play a useful role for their members.

**Box 4: How big is electronic commerce and how fast will it grow?**

**"From a disappointment in 1996 ...**

You can spend an hour just finding a product. No wonder analysts reckon that consumer Internet transactions in 1996 were worth a total of only around $500m-600m ... In the three years since the Internet has taken off, the slow growth of electronic commerce has been one of its greatest disappointments.

**... to a boom in 1997?**

Cisco Systems, a network-equipment maker, is already selling products from its Web site at the rate of $1 billion a year. General Electric is saving a fortune by buying $1 billion-worth of goods from its suppliers online. Dell Computer is selling $1m-worth of Personal Computers a day on the Web. "We have waited a long time for broad-based electronic commerce, and it looks like 1997 will be the year that the market gains legitimacy," says Bill Gurley, an analyst with Deutsche Morgan Grenfell.

**Electronic commerce will not be what it was expected to be**

Indeed, practically everything that was predicted about electronic commerce three years ago has turned out to be wrong. For a starter, the big money is not in consumer shopping but in business-to-business commerce. This should not have been a surprise — it mirrors the physical world, where business transactions are worth about ten times as much as consumer sales — but few realised how quickly apparently stodgy firms would convert. Second, the industry has defined electronic commerce too narrowly. Most analysts include only transactions actually carried out on the Internet; but many consumers research their purchases online and then buy in some other way. No wonder the analysts' forecasts are so widely spread. Only 3% of business-to-business Web sites are designed for direct sales, rather than for marketing and customer service, says Forrester Research, a Massachusetts consultancy. Even for consumer businesses, only 9% of sites offer online transactions. A CommerceNet/Nielsen survey in March found that whereas 53% of Internet users in the United States and Canada had used the Internet to reach a decision on a purchase, just 15% carried out the final transaction on the Web. Yet it is just that last bit that is usually measured."

*Source:* "A survey of Electronic Commerce", *The Economist* 10 May 1997.

## SECTION IV - NEW OPPORTUNITIES FOR TRADE AND DEVELOPMENT

31. The first three sections of this document have attempted to underline how and why recent advances in telecommunications have contributed to reshaping not only the world of business and trade transactions, but also more fundamentally the underpinnings of trade policy and trade negotiations. These elements would fully suffice to justify a high level of attention being accorded to telecommunications-related matters by all countries and enterprises involved in international trade. Also, it has been stressed in those sections that the emerging Global Information Infrastructure within which an increasing share of business and trade transactions is taking place is still largely uncharted, especially from a regulatory point of view.[9] In such a context, those players with a broader range of practical experience will be in a better position to appreciate the respective costs and benefits of the alternatives proposed. This is another major reason why developing countries in particular should grant priority to obtaining such hands-on experience.

32. There is an increasing number of ways through which this can be done. This last section will explore two of them which are of direct relevance to UNCTAD's membership, namely the Internet and the Global Trade Point Network (GTPNet).

### 1. Internet potential

33. Because of its ease of use and its remarkably low cost, the Internet is becoming the avenue of choice for participating in the so-called global information society. It has been estimated that the number of Internet users almost doubles every year.[10]

34. Depending on the infrastructure and equipment available locally, individuals and enterprises can access electronic mail, text files (through file transfer protocol, ftp) or multimedia documents (through hypertext transfer protocol, http) on the World Wide Web (WWW). Although to varying degrees, most of the world now has some access to the Internet, as shown in the map below (figure 6).

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[9] One cannot ignore the pioneering efforts made by standard-setting bodies such as those of ITU, UN-ECE (in the are of EDI in particular), or by other institutions such as the OECD (transborder data flows) or UNCITRAL, which produced a Model Law of Electronic Commerce in 1996. However, as telecommunications and trade issues continue to converge (e.g. in the field of electronic commerce), more universally accepted rules will be required by Governments and by the business community. See "Regulatory implications of telecommunications convergence", Report of the sixth regulatory colloquium (Geneva, 11-13 December 1996), ITU, 1997.

[10] "Worldwide, some 23m households are now connected to the Internet, which translates into around 55m users. Some estimates, taking a broad definition of Internet use, say that by 2000 the number could grow to 550m, or 10% of the world's population." (The Economist, "A survey of electronic commerce", 10 May 1997).

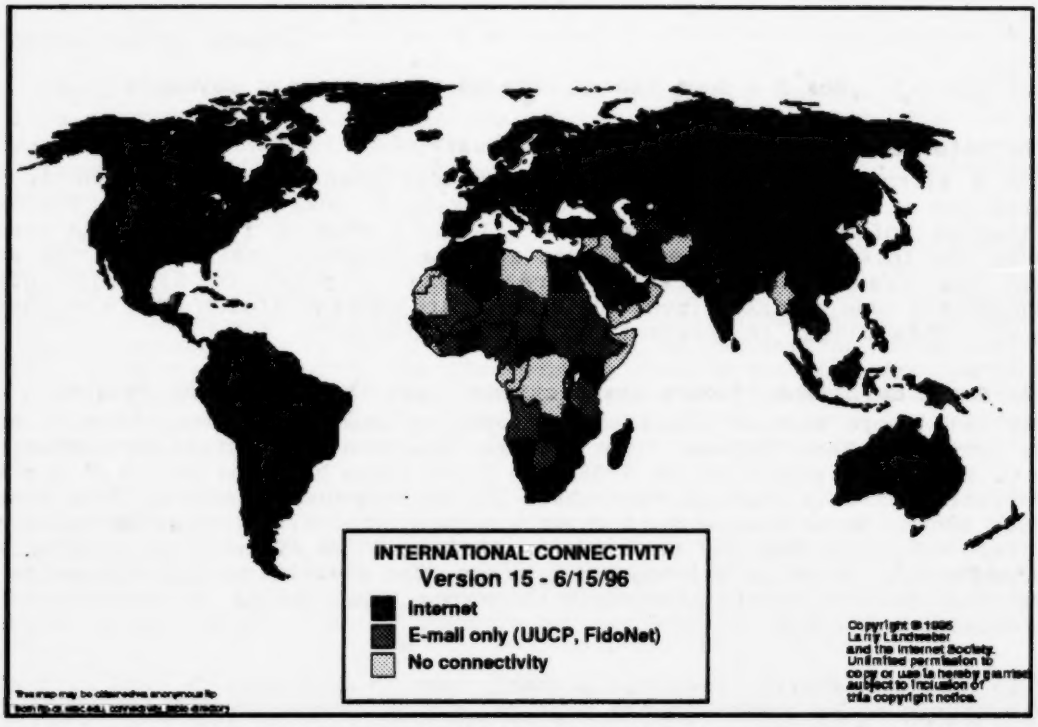


**Figure 6 - Internet connectivity in 1996 (Source : Internet Society)**

35. For developing countries, one of the major interests and specificities of the Internet (in addition to its unrivalled price/power ratio) is its interactive nature: when using the Internet, developing countries cease to be at the receiving end of the international information network. They can provide, publish and disseminate their own information, in the format and words they consider most appropriate. This is particularly important for SMEs interested in participating in international trade, since they now have a low-cost and high-efficiency way to approach potential customers worldwide.[11]

36. There are still strong limitations, however, to the ways in which the Internet can be used for the purpose of business facilitation and trade efficiency. Among such limitations (real or perceived), the following appear of particular importance for developing countries and economies in transition and would require increased international attention: access cost (which still remains too high in many parts of the world, either because of telecommunication charges or ISP pricing or both), and security of transactions and payments (see box 5 below).

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[11] Practical examples of how permanent missions in Geneva have been using the Internet are mentioned in box 6 below. This ability to produce information (as opposed to simply receiving it as in the traditional broadcasting model) is even available to countries and enterprises which still do not have Internet connectivity, as evidenced for example by GTPNet's "Web incubator", see sub-section 2) below.

**Box 5 : Some issues related to electronic payments**

**1. Internet security: is the problem real?**

*"In a virtual world the issue of trust gets magnified."*, Steve Herz, Visa's director of electronic commerce. Jim Barksdale, boss of Netscape, the leading Internet software firm, insists that "I don't know of a dime that's been lost over the Internet." Even executives at Visa International, one of the world's two top credit-card companies, are unable to point to a single properly documented case of fraud involving credit-card numbers stolen over the Internet. (...) This danger is not confined to the Internet".

**2. Smart cards and "secure transactions" are the way to the future**

"By 1995 there were at least seven competing payment schemes, from firms such as CyberCash, Wave Systems, First Virtual, DigiCash and Digital Equipment, along with several universities. By 1996, the first three had gone public at a combined valuation of $1.4 billion. The three listed companies combined have done less than $3m-worth of business in their entire history; not coincidentally, their total valuation has fallen by over $1.2 billion since going public. Their troubles are rooted in a fundamental error. The digital-money business is built on the premise that electronic commerce will bring a boom in 'micro-transactions'".

" To take off, digital cash will probably have to work hand in hand with similar electronic money tokens in the physical world. Companies such as MasterCard's Mondex subsidiary and Visa International are promoting "smart cards" with stored value, similar to European and Japanese telephone cards but for use anywhere."

"Visa and MasterCard, the two biggest credit-card clubs, are working together on a technology called Secure Electronic Transaction (SET) that could make credit cards safer on the Internet than they are in the physical world. Today, standard Internet-commerce software encrypts card numbers as they travel over the Internet from customer to merchant; but once the details arrive at the merchant's computer, they are dealt with in the same way as if they had been handed over the counter. SET will shield the numbers from the merchant by keeping them encrypted all the way to the bank. This would be no help if the customer was using a stolen card, but it would make it harder for unscrupulous merchants to steal card numbers. "

**3. Fiscal and monetary issues**

"Information goods, from software to news, can travel on the Internet itself, where customs agents have not yet ventured. For money, the leap into the virtual world seemed more hazardous, so a whole new set of Internet currencies (digital cash) was prepared to resist every conceivable attack by hackers". Broader issues such as uncontrolled monetary creation of massive tax evasion have also been raised; for instance UK's Chartered Institute of Taxation has warned of a possible "black hole in cyberspace", after research suggested that 60 per cent of financial services companies would use the Internet for deals, as opposed to 13 per cent today.

*Source:* Quotes are from "A Survey of Electronic Commerce", The Economist 10 May 1997, and (for the last one) from the Financial Times, 9 June 1997.

**2. GTPNet as an example**

37. GTPNet was officially launched by the Secretary-General of the United Nations at UNISTE (Columbus, Ohio) in October 1994. Since then, the number of Trade Points has doubled - there are currently 132 at different stages of development - and major achievements have been made in the technological advancement of the network.

38. The Trade Point Development Centre (TPDC), hosted since July 1995 by the Royal Melbourne Institute of Technology (Australia), has been responsible for the development of innovative tools and interfaces used by GTPNet, including the Electronic Trading Opportunities (ETOs) System[12], the GTPNet World Wide Web site on the Internet, and its corresponding "Trade Point Internet Incubator" (see below). Recently UNCTAD-TPDC has been working towards moving Trade Points from the pre-transactional to the transactional stage. At present, a secure intranet link - the Secure Electronic Authenticated Link (SEAL) - is operating between China, Australia and the United States[13].

39. GTPNet currently features two UNCTAD-maintained World Wide Web servers in Geneva and Melbourne. To increase the ease and speed of access to the network, mirror sites of the main GTPNet servers are being set up around the world, mainly at universities. To date, 39 mirror sites have been established in 24 countries and territories.[14] In addition, several Trade Points, such as Columbus, Tampere, Jakarta, Harare, Moscow, Namur, Zaragoza and Los Angeles, are now operating their own servers.

40. Besides these servers, many Trade Points (approximately 40 of the total of 132) are connected to full Internet services (WWW, newsgroups, gopher, etc.) using their local Internet providers. A survey carried out in 1996 with the majority of operational Trade Points demonstrated that those Trade Points which use the Internet more actively to promote their services or their clients' services also facilitate a higher number of trade transactions per month and offer a broader range of trade facilitation services than other Trade Points. In addition, it was found that these Trade Points (which use new information technologies more frequently) usually reach their financial break-even point faster than others.

41. Access to full Internet, however, is still far from global: another 35 Trade Points exchange information via E-mail and the rest, mainly in LDCs, still communicate via fax. For those Trade Points which do not yet benefit from full

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[12] Several hundred Electronic Trading Opportunities (ETOs) are disseminated daily. ETOs are electronic messages sent out in free format or in UN/EDIFACT compatible format, allowing easy retrieval and database management independent of hardware, software or communications media. Internet and the advancement of telecommunications infrastructure make it possible for most ETOs to be disseminated to SMEs worldwide at a very low price.

[13] SEAL was officially launched at the UNTPDC/ESCAP conference on Information Technologies and Electronic Trading held in Bangkok, Thailand, on 21-23 May 1997. Thus, a further milestone has been reached in transforming GTPNet from a pre-transactional electronic trading network to a transactional tool where actual contracts can be signed and payments made.

[14] Australia, Belgium, Brazil, Canada, Czech Republic, Costa Rica, Egypt, Finland, Hong Kong, Indonesia, Israel, Italy, Japan, Poland, Portugal, Republic of Korea, Russian Federation, Singapore, Slovenia, South Africa, Spain, Switzerland, United States and Zimbabwe.

Internet services, UNCTAD-TPDC has set up an Internet Incubator which enables Trade Points (especially in developing countries) without access to the Internet to use the UNCTAD-TPDC servers as data repositories. It also helps Trade Points in both developed and developing countries to use the latest graphical design techniques to build their home pages and product catalogues. For instance, before it started to operate its own server, Trade Point Harare used the Internet Incubator to upload not only Trade Point information, but also an entire searchable database on the GTPNet server.

42. Web traffic over GTPNet has grown exponentially since the Web site was launched in January 1995. The two main servers registered a total of 2.6 million hits for the month of January 1996 and 32 million hits in February 1997. This makes the UNCTAD-TPDC WWW Site one of the most active trade sites on the Internet.

43. Thus, the strategic choices made by UNCTAD in designing, implementing and enriching the Global Trade Point Network reflect the current evolution of electronic commerce, namely:

(a) GTPNet is increasingly Internet-based;
(b) It is building upon its experience as a "pre-transactional network" to move to a fully transactional one (from contacts to contracts);
(c) It has been designed as a business-to-business tool, allowing SMEs worldwide to contact each other with minimal intermediation; and
(d) Its approach to electronic payment is based on a smart-card approach, involving strategic alliances with traditional players in the field of international payments (rather than using electronic money).

**3. Proposals expected from participating experts**

44. It is expected that, from the discussions raised by this issue paper, as well as from the information received during the course of the meeting (especially through exposure to the relevant sessions of ITU's Telecom Interactive), participating experts will be in a position to offer views and suggestions regarding the ways in which UNCTAD's work could be further enhanced in order to assist developing countries and economies in transition to take advantage of recent developments in telecommunications through greater trade competitiveness, better business facilitation and higher trade efficiency. In this context, accent should be put on ways and means to offer practical tools to the smaller players, in particular small and medium-sized enterprises, and the least developed countries.

45. Such views and suggestions will be of high value in the areas in which UNCTAD might be called to contribute, including policy advice, support to the process of multilateral trade negotiations, and technical assistance (including assistance through the Global Trade Point Programme). They will in particular constitute a major input to future work by the Commission on Enterprise, Business Facilitation and Development.

**Box 6: Practical examples of how Internet can improve methods of work: presence of some Geneva permanent missions on the World Wide Web**

**Malta**

- Politics, History ..and Culture
- Geography and Commerce
- Business and Commerce

**France**

- Media
- Government links
- Practical information
- Press releases

**ITU INFORMATION**

ITU provides public documentation (press releases, speeches, etc), public databases (e.g. ITU Global Directory), documents restricted to ITU membership. **ITU has over 30,000 documents and several databases on the Internet.**

**INTERNET SERVICES**

ITU provides Permanent Missions with electronic mail, access to World-Wide-Web, bulletin boards, mailing lists and other services like Gopher, FTP ( File Transfer Protocol), etc.

**TRAINING AND TECHNICAL SUPPORT**

ITU provides a "reasonable" amount of training and support to members of the diplomatic community who need help in the use of Email, PC connection, modem, use of FTP, basic help in the creation of Web pages and connectivity problems.

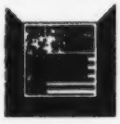
Within reasonable limits, ITU can set up a WWW (or Gopher) server for Missions, provide necessary disk space, train Mission staff on remote updating of information, provide statistics on access to Mission information.

**Madagascar**

- Economy
- Service offers
- Web sites

**China**

- China ABC
- Across the country
- Tribune for special ..topics



**USA**

- US Trade Law and ..Trade Policy
- USIA Publications ..and news sources
- Electronic journals

Over 300 users from 55 Permanent Missions currently use ITU Internet services. Switzerland-based Permanent Missions which have a homepage on the ITU server are: Bulgaria, China, Finland, France, Germany, Indonesia, Italy, Japan, Luxembourg, Madagascar, Malta, Pakistan, United States, and Yugoslavia. Examples of information offered by the Switzerland-based Permanent Missions are: country information (politics, business and commerce, geography, history and culture, tourism, etc), lists of permanent missions, embassies, consulates, press releases and other topics of interest.

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